



## Extremely Wet Conditions Across the Missouri Basin Sets the Stage for a Significant Spring Flood Season

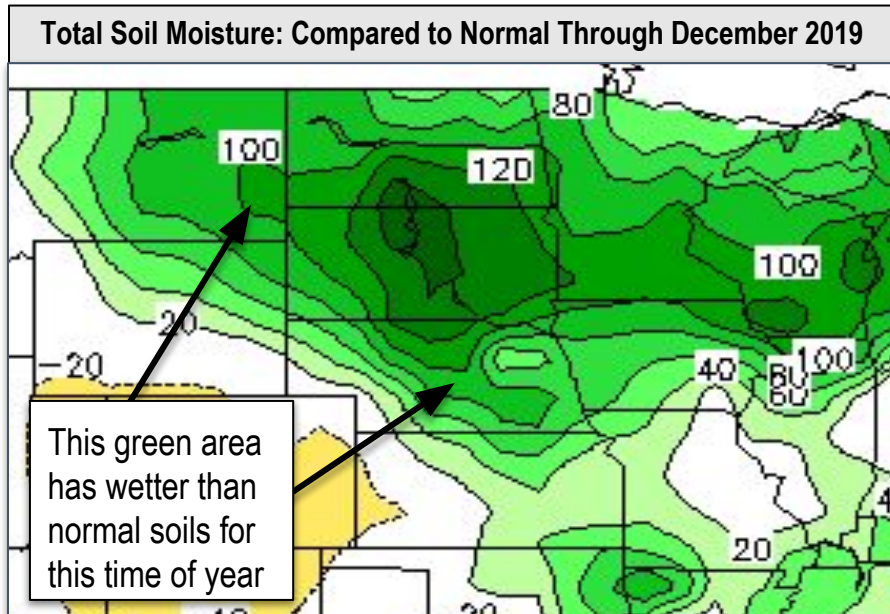
### Setting the Stage:

#### *Precipitation and Soil Moisture*

Well above normal rain and snowfall throughout 2019 has led to record flooding and abnormally wet ground for the winter season across much of the Missouri River Basin.

Through the end of December 2019, the Missouri River Basin has had its 3rd wettest year in 124 years of modern record keeping.

Across the Missouri River Basin ND, SD, NE and KS recorded their top 5 wettest years (January 2019 – December 2019).



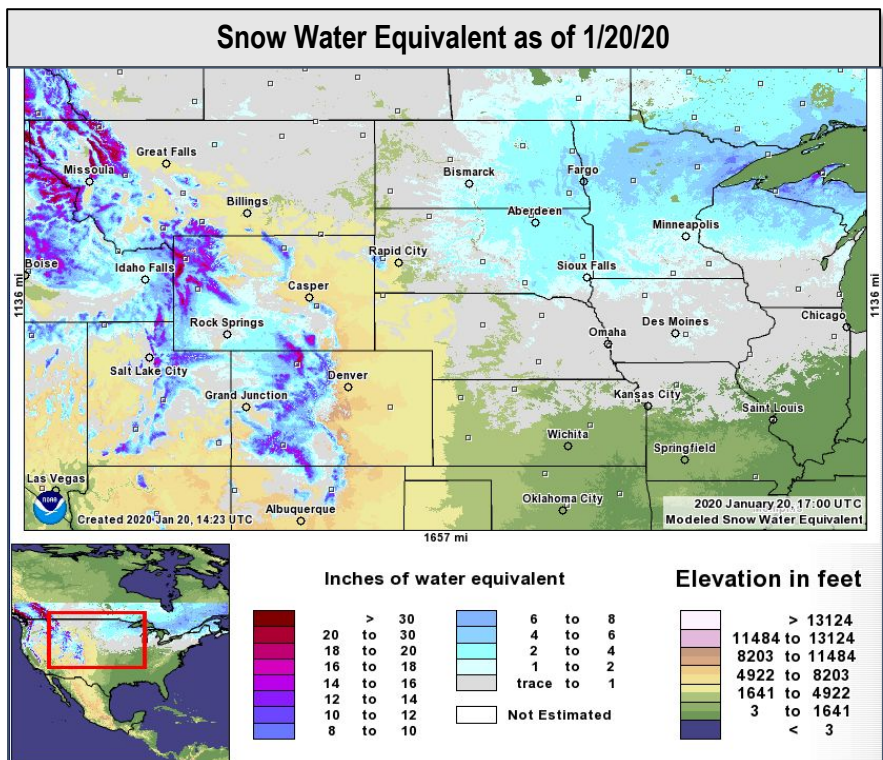
ABOVE: Wet soils across most of the Missouri River Basin can accept very little or no more water. Source: NOAA/NCEP/CPC

### Setting the Stage:

#### *Snow Pack*

The seasonal snowpack continues to build across the headwaters of the Missouri. The plains snowpack across the eastern Dakotas is already at 8-20 inches of snow depth, which is holding 2-3+ inches of water. Elsewhere across the plains, the snowpack varies. However, with the potential for below normal temperatures and above normal precipitation anticipated for the month of February, there is a chance to increase snowpack in areas that have little to none currently.

Overall, the mountain snowpack is running about average at this time. We still have a few months left to accumulate additional snow as we are only a little over halfway through the season.



ABOVE: Snow Water Equivalent Map as of January 20, 2020.  
Source OWP/NOHRSC

**NOAA's Spring Flood Outlook**  
Release: March 19, 2020



## Precipitation Outlook and Potential Impacts this Spring

Late Winter/Spring 2020:

### Outlook

We are heading into the spring with wetter than normal soils, a healthy snowpack and latest guidance shows that several rivers and streams are running higher than normal.

The latest 2020 Winter Outlook suggests that odds favor a normal to **wetter than normal February through April** across much of the Upper Missouri River basin, with higher odds farther north. We are also expecting **cooler than normal temperatures** as you head further north, which could hold onto the snowpack longer into the spring. This increases the chances for a sudden and high-impact thaw in the spring.

### What are the ingredients of a significant spring flood season?

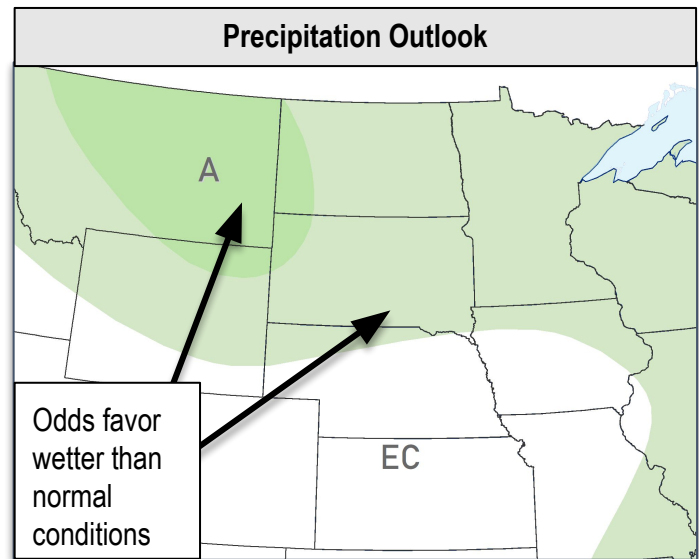
**A repeat of 2019 is not a guarantee.** There is still a lot of time and factors that would need to come together before we will know just how bad, or how uneventful it will be.

### Factors that would improve our situation:

- A period of dry, warm weather allowing soil to drain and evaporate existing moisture
- Little to no additional snowfall with no extreme cold snaps
- Gradual transition out of winter into spring with mild daytime temperatures and night time low temperatures below freezing - this will allow snow to ripen and melt off a little bit at a time

### Factors that would lead to significant spring flooding:

- Above normal snowpack across the basin
- A long-lived, widespread cold snap on bare ground that freezes the soil deep below the surface and builds a thick layer of river ice
- Sudden transition from winter to spring that melts the snowpack rapidly and increases the chance for ice jams on the rivers
- A significant rain event on top of snow pack that releases the water in the snow rapidly



**ABOVE:** The outlook indicates odds favor wetter than normal precipitation from February through April across areas that already have wet soil and high river levels.  
(Get the latest outlook: [www.cpc.ncep.noaa.gov](http://www.cpc.ncep.noaa.gov))

### Potential Impacts

Unusually high streamflow, water levels, and abnormally wet soil suggest the **following potential impacts** for the upcoming spring flood season:

- **Widespread ice jams, including on some rivers that are not usually affected by ice jams**
- **Widespread major flooding again this spring**
- **Delay or prevention of crop planting**
- **Long-term soil damage**
- **Travel impacts due to road, dam, levee, and bridge damage**

### For more information visit:

**Local Forecast** – [weather.gov](http://weather.gov)

**Long-Range Outlooks** – [cpc.ncep.noaa.gov](http://cpc.ncep.noaa.gov)

**River Forecasts** – [water.weather.gov/ahps/forecasts.php](http://water.weather.gov/ahps/forecasts.php)

**Weather & Climate Data** – [ncei.noaa.gov](http://ncei.noaa.gov)